

SECTION 710

BORING, DRILLING AND JACKING

710.1 GENERAL

Boring, drilling or jacking operations defined in this section are related to the installation of water pipe, sanitary sewer pipe, storm sewer pipe, and traffic conduit in areas where trenching is not feasible.

710.2 REFERENCES

710.2.1 This publication:
SECTION 129

710.3 BORING

710.3.1 Boring shall be performed to alignment and grade as shown on the construction drawings. The earth and/or rock augers shall not exceed the O.D. (outside diameter) of the steel casing by more than 1/4 of an inch. The boring and insertion of the steel casing shall be performed with equipment capable of simultaneous operation. The feed rate of augers and hydraulic pushing of the casing shall be the same. Under no circumstances will boring be allowed unless operations are simultaneous. Every effort shall be made to avoid loss of earth. Excavated material shall be removed from the casing as excavation progresses and no accumulation of such material within the casing shall be permitted. Upon completion of the boring operations, all voids around the outside face of the casing shall be filled by grouting. Grouting equipment and material shall be on the job site before boring operations are started in order that grouting around the bored casing may be started immediately after the boring operations have finished. The allowable tolerance as to grade and alignment of the installed casing shall not exceed 1/10 of a foot per hundred feet of casing length.

710.3.2 The CONTRACTOR shall be responsible for locating any underground utilities and for any damage resulting thereto. The CONTRACTOR shall be fully responsible for producing a sound, tight installation, true to line and grade. Carrier pipe shall be skidded through the casing on redwood, stainless-steel tied skids. A suggested method is shown in the Standard Detail Drawings. Other methods shall be approved in writing by the ENGINEER.

710.4 STEEL CASING

710.4.1 The steel casing shall be seamless or electric resistance-welded tubing for sizes under 24-inch O.D. and standard double-submerged arc-weld for sizes over 24". Tubing shall be A-106, Grade B with bevelled ends.

710.4.2 Table 710.4.2 shows the steel casing size and thickness as related to the ductile iron carrier pipe.

710.5 INSTALLATION DETAILS

710.5.1 Prior to the start of the boring operations, the CONTRACTOR shall submit the following details to the ENGINEER:

710.5.1.1 Boring pit bracing

710.5.1.2 Casing boring head

710.5.2 Only workmen experienced in boring operation shall perform the work.

710.6 DRILLING AND JACKING FOR ELECTRICAL CONDUIT

Metallic conduit shall be installed under existing pavement by approved jacking or drilling methods. Non-metallic conduit shall not be installed by jacking. Non-metallic conduit may be installed by drilling if a hole larger than the conduit is pre-drilled and the conduit is hand-installed. Jacking or drilling pits shall be at least 2 feet from the edge of any type of any pavement, measured from the side of the pit nearest to the pavement.

710.7 MEASUREMENT AND PAYMENT

710.7.1 BORING:

Measurement shall be per linear foot of bored casing, and shall include furnishing all labor, materials, equipment, and work involved in the boring operations. The unit measurement shall also include skids, steel ties, grouting, and other items associated with the boring and casing. Payment shall be made at the unit price per diameter of casing per linear foot, as specified in the Bid Proposal. Payment for the carrier pipe shall be in accordance with Section 129.

710.7.2 DRILLING AND JACKING FOR ELECTRICAL CONDUIT:

Measurement shall be per linear foot of installed electrical conduit and shall

include all labor, materials, equipment,
and work required for the operation.
Payment shall be made at the unit price
per diameter per linear foot, as indi-
cated in the Bid Proposal.

TABLE 710.4.2

CASING SIZE VERSUS CARRIER SIZE

<u>Steel Casing Diameter and Wall Thickness</u>	<u>Ductile Iron Carrier Pipe (Inside Diameter)</u>
14" Schedule 30	6"
16" Schedule 30	8"
18" Standard Class	10"
22" Standard Class	12"
24" Schedule 20	14"
26" Schedule 20	16"
30" 0.375" Wall	18"
36" 0.375" Wall	24"